

Paleoclimatology

Information Sheet FY2009

The CCDD paleoclimatology effort is directed at supporting the CCDD goals of producing long time series of key climate variables, analyzing these time series for information on climate variability and trends, and characterizing the natural background signal of the climate system for the purposes of detection and attribution. An overarching theme is the synthesis and integration of diverse observations, combined with models and process understanding, to advance climate prediction.

For FY 2009, there will be a continuation of the research program that focuses on high quality reconstructions of the climate history over the Holocene, with an emphasis on the last two millennia, especially the last 1,000 years (i.e., the late Holocene). Proposals are encouraged that address high resolution, multiproxy reconstructions that blend the paleo and instrumental records to achieve the most accurate, multi-variable climate history possible. Proxies should have achieved sufficient maturity, or should have demonstrated promise, for climate studies. High quality documentary archives are a potential resource.

Emphasis will be placed on using currently available measurements at resolutions as fine as seasonal, mining the time- and frequency-domain information in multiple, well-calibrated proxies, and producing spatially complete data sets (i.e., filling in Northern Hemisphere data and supplementing these data with equatorial and Southern Hemisphere data sources). Proposals that involve a substantial field campaign(s) to collect data should be directed to programs other than CCDD.

Proposals will be viewed most favorably if they include one or more of the following foci:

(1) identifying and characterizing historical extreme events that have severely stressed human or natural systems (e.g., the onset, duration, frequency, intensity, and decline of droughts or mega droughts) and the variability of these extremes, identifying the space and time scales of extreme events that can be resolved in the paleo record, and establishing a common framework for paleo and modern estimates of extremes and the comparison of these records; (2) resolution of outstanding calibration and dating issues; (3) rigorous computation of sources of uncertainty and uncertainty bounds in reconstructions; (4) more accurate estimates of climate forcings; (5) the use of paleoclimate data to constrain model simulations and validate the ability of models to simulate forced and unforced change; and (6) narrowing the range of climate sensitivity estimates.

The emphasis on historical extremes includes the natural modes of variability (e.g., ENSO, PDO, NAO, etc.), as well as the extreme events experienced at smaller space and time scales that may be connected to these modes. This focus will require the acquisition or production of high-resolution data sets. Also, the identification of precursor conditions for extreme events is desirable and may be a key element of any early warning system.

Modeling studies are encouraged to use model output from other investigations or to demonstrate that proposed model runs will receive substantial support from other sources.

Proposed studies should produce data sets that are ready for climatic interpretation and include, to the extent feasible, this type of interpretation in the proposed study.

TECHNICAL DETAILS

Proposals will be considered for up to three years in duration, but one and two year proposals are encouraged. Funds for each subsequent year of multi-year proposals will be subject to a review of annual progress reports.

Proposals should indicate how data sets will be archived and made available upon project completion. Principal Investigators should contact the Paleoclimatology Branch of the National Climatic Data Center (NCDC) during proposal preparation to discuss the characteristics of data sets that will be produced and the appropriateness of these data for archiving at NCDC. If the data will be accepted at NCDC, the proposal budget should include funding, if needed, for archive steps. Contact information is:

NOAA Paleoclimatology Program
325 Broadway, Code E/CC23
Boulder, CO 80305-3328
U.S.A.
E-mail: paleo@noaa.gov
Telephone: 303-497-6280
Fax: 303-497-6513